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HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute, please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund,* and mail to:

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Diet and Atherosclerosis in the Orient

The best hope to arrest, retard, or prevent atherosclerosis lies in discovering the reasons for geographic, ethnic, and constitutional variations in frequency and degree of the disease.

Many countries either lack statistics or have statistics that are not reliable. Results of medical and anatomic surveys from the same area are apt to differ. Limitations of morbidity statistics are obvious. Mortality statistics are worthless unless they are based on necropsy data. The International List of Causes of Death and the currently used death certificates hinder rather than further the epidemiologic study of atherosclerosis.

The author visited Bangkok, Thailand, Hong Kong, and many cities in Japan, making an analysis of the nutrition pattern of the average population.

Japan has a rather uniform population, which is also uniform in regard to diet. Differences are quantitative rather than qualitative. The average daily intake is 2,104 calories. Fat provides an average of 8.6% of all calories, while proteins contribute 12.8%, and carbohydrates 78.8%. The average daily fat consumption is 20 gm., protein 77 gm., and carbohydrates 411 gm.

The fats most used are sesame oil, containing about 87% unsaturated fatty acids; soybean oil, containing an average 86.6%; and peanut oil, with 82.9% unsaturated fatty acids. The linoleic acid content of the three oils is 21, 51.2 and 29%, respectively. The ratio of linoleic acid to saturated fatty acids is 1.6, 3.9 and 1.7, respectively.

Total fat consumption is low, total protein intake is not high. Two-thirds of the protein comes from fish and vegetables, while only one-third is obtained from meat. On such diet the Japanese are lean. The average Japanese is not undernourished, but he is somewhat less than "well nourished."

Cardiovascular disease occurred in 14.5% of all hospital patients in 1954. Today, the figure undoubtedly is higher. Since 1936, the incidence of angina pectoris, myocardial infarction, and renal and cerebrovascular diseases has been steadily rising. The ascending curves were slightly disturbed by a drop in frequency during the war years, 1942 - 1945, and into the following year. Since 1949, the increase has been steady and marked. Curves for anginal symptoms, whether spontaneous or elicited by effort, and for myocardial infarction run parallel.

The incidence of cerebral hemorrhage is twice that encountered in North America and is more frequent than myocardial infarction. Hypertension, as such, also is more common in Japan than in the United States. Clinical data are matched by anatomic data. Both types were collected by members of a special Committee of the Ministry of Education.

In 1955, the death rate from heart disease was 64.4%. The ratio of males to females was about the same as in America as far as myocardial infarctions and atherosclerosis are concerned. Positive correlation of the degree of atherosclerosis between coronary arteries and aorta is close to 80%.

Coronary disease appears earlier or at the same time as aortic disease. Basilar and renal artery disease develops later and more slowly than that of coronary arteries.

Thailand presents a different picture than Japan—statistics are confusing and the population lacks the ethnic uniformity of Japan. From various statistical reports, fat consumption ranges from 28 to 42 gm; protein, 47 to 60 gm.; and carbohydrate, 208 to 420 gm. Correlation of diet with health has not been possible to date because of refusal of physical examination by the populace.

Lard is the main source of fat (43% saturated fatty acids). Some coconut oil is used, with about 91.2% saturated fatty acids. The linoleic acid content of lard is 10%, that of coconut oil only 2%; the ratio of linoleic acid to saturated fatty acid is 0.23 for lard to 0.02 for coconut oil.

While there are no statistics concerning the incidence of atherosclerosis, the rarity of clinical disease is pointed out by all physicians of Thailand. Clinicians can count on their fingers the number of patients with myocardial infarction or angina pectoris. Myocardial infarction is a rare postmortem diagnosis. The aortae appear "younger" at necropsy than those of Americans of corresponding age. Complicated atherosclerotic lesions are seen in the aged only.

The low incidence of atherosclerosis is even more surprising when one learns that diabetes mellitus is common. Physicians encounter the renal complications of diabetes, but not those in other sites. It was not ascertained whether diabetics develop hypercholesteremia, nor was blood cholesterol of nondiabetics determined. Hypertension is common, occurring in 6 to 7% of hospital patients in 1954 - 1955. Necropsy findings seem to support clinical observations.

Atherosclerosis does not constitute a problem in Thailand, for the present at least. Published data are available, but interest in the subject is limited, and research is limited by lack of facilities and personnel.

Japan and Thailand represent two extremes. According to prevailing concepts, the Japanese diet can be labeled "antiatherogenic" while the diet in Thailand can be labeled "atherogenic." The Japanese diet is low in calories, fat, and cholesterol. Fried food is rare. The fat used is rich in linoleic acid and other unsaturated fatty acids. The diet in Thailand is rich in fat and cholesterol. Fried food is common and all food is greasy. The fat used contains little linoleic acid and few other unsaturated fatty acids. Atherosclerosis is common in Japan and rare in Thailand.

"Evidence to support the concept that high levels of plasma cholesterol, per se, in man are atherogenic is far from conclusive. Circumstantial evidence, however, indicates that the kind or amount of dietary fat is in some way related to some stage of atherosclerosis in man. A reduction in intake of the more saturated fats in the diet may ultimately prove desirable for health, but is not yet mandated by currently available evidence." This cautious statement by the Food and Nutrition Board of the National Research Council may have to

undergo revision. (Pollak, O. J., Diet and Atherosclerosis: Am. J. Clin. Nutrition, 7: 502-507, September - October 1959)

* * * * *

Current Aspects of Management of Pericarditis

Acute pericarditis continues to present a challenge to the clinician from the viewpoint of etiology and differential diagnosis as well as treatment.

Occurring in the course of myocardial infarction, neoplastic disease, and advanced renal disease with uremia, acute pericarditis may be accepted as directly related to these disorders. However, it poses an etiologic and differential diagnostic problem when encountered not only in the so-called idiopathic or nonspecific form, but even in the case of so-called rheumatic or primary tuberculous pericarditis. Clinically, these three types of pericarditis markedly resemble each other. Considerable difference in treatment and prognosis is apparent.

At times, the clinical picture of pericarditis resembles closely that of acute myocardial infarction. Whether it occurs in a person of middle age or older, the differential diagnosis bears greatly upon the immediate and long-term management.

Dissatisfaction with laboratory procedures currently available for diagnostic differentiation has prompted a search for additional laboratory aids. Of these, the fibrinogen polymerization (FP) test of Losner and Volk holds particular promise. Having noted its highly specific nature in active rheumatic fever and arthritis, the authors explored its usefulness in pericarditis and found it to be positive in a preliminary group of patients with acute rheumatic and nonspecific pericarditis. They have since followed 20 patients with pericarditis by systematic serial studies of the FP test as well as the conventionally used acute phase reactants, including the C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), plasma fibrinogen concentration, and antistreptolysin-O (ASO) titer. In cases where myocardial infarction must be considered, the serum GO-transaminase test was also employed.

Initial determination of the FP test gave consistently positive results in the acute phase of nonspecific pericarditis, correlating well with the uniformly accelerated ESR and plasma fibrinogen concentration, but poorly with the CRP and ASO titer. The FP test was positive also in acute rheumatic pericarditis. It correlated well with the ESR, CRP, and plasma fibrinogen concentration, but poorly with ASO titer. In the presumably tuberculous group, the FP test was negative as were all other tests except the ESR.

In serial determinations extending over a period of up to 12 months, the FP test reflected closely the clinical course of idiopathic pericarditis and rheumatic fever. Also, there was close correlation between the FP test and ECG changes. Furthermore, it was noted that the FP test remained positive

until all clinical manifestations of activity of the disease disappeared, while the acute phase reactants usually reverted to normal at an earlier date. In several instances when the FP test remained positive for a prolonged period, recurrence of acute pericarditis was observed and with it a return to abnormal of the acute phase reactants.

In contrast to the nonspecific acute phase reactants, the FP test was not affected by steroid therapy. Results observed by the authors seem to confirm the value of the FP test as a useful aid (1) for diagnosis of the nonspecific variety of acute pericarditis, (2) for evaluation of continued activity of the disease, and (3) for determination of efficacy of treatment.

In so-called rheumatic pericarditis, the doubt appears to be justified whether cases of isolated pericarditis are truly rheumatic in nature when they occur in patients with a history of rheumatic fever or when they present the findings of inactive rheumatic valvular disease. Clinically, this appears certain only in the presence of simultaneous rheumatic myocarditis, endocarditis, or other associated major manifestations of acute rheumatic fever.

The fact that the FP test is positive in the acute phases of all observed cases of nonspecific and rheumatic pericarditis, and reflects the course of this disease as consistently as it does in active rheumatic fever with and without carditis suggests an underlying mechanism common to both conditions which interferes with the normal polymerization process of fibrinogen.

Complete studies in relationship to the significance of the FP test in patients with tuberculous pericarditis are not available. However, observations suggest that a negative FP test may help rule out acute rheumatic or nonspecific pericarditis, but is of no significance in relation to tuberculous pericarditis.

The problem of differentiation of pericarditis from myocardial infarction may be solved by the combined use of the FP test and serum enzyme determination. This problem is particularly acute when the ECG fails to show the pattern of a typical transmural infarction.

Treatment of nonspecific pericarditis is difficult to evaluate. Equivocal results have been reported not only with salicylates, but also with a number of antibiotics, alone or in combination. In more severe cases, prompt administration of steroids has proved most efficacious, although not necessarily preventing recurrences.

After institution of a regimen, prompt improvement of symptoms and restoration of normal temperature usually follows in 24 to 48 hours. Within a short period, acute phase reactants also return to normal. The FP test remains positive for a longer period. Discontinuance of steroids at this point leads to a quick relapse. Only when the FP test has turned negative and remains so for at least two weeks is it advisable to reduce steroids in the manner usually recommended for a high dosage regimen.

Observations of the authors on treatment of so-called rheumatic pericarditis confirm the adequacy of salicylate therapy in most cases. Steroid

administration may be required in certain selected cases. Again, the FP test is a reliable guide to therapy.

In cases where tuberculous etiology cannot be ruled out with certainty, the advisability of steroid therapy may be questioned. Some observers have reported that cortisone treatment does not prevent the early onset of constrictive pericarditis. Prophylactic use of isoniazid is advisable in cases of non-specific pericarditis where there is reasonable suspicion of a tuberculous cause. (Fremont, R. E., Volk, B. W., Newer Aspects of Diagnostic and Therapeutic Management of Acute Idiopathic Pericarditis: Dis. Chest, XXXVI: 319-327, September 1959)

* * * * *

Carcinoma of the Prostate

Appreciation of the comparatively high incidence of occult carcinoma of the prostate gland in elderly men has stemmed from the observations of Muir, Rich, and Moore. In Rich's cases, the lesions were found for the most part located beneath the capsule in both lateral and posterior lobes, while in Moore's investigation almost three-fourths of the neoplasms were located in the posterior aspect of the gland. The predilection for posterior localization was substantiated by Gaynor. Kahler, on the other hand, found more lesions originating in the lateral lobes. An indication of multicentricity of origin was provided by Moore who observed 68 neoplastic foci in 52 prostate glands containing small carcinomas. Gaynor and Kahler also described multiple sites of origin.

The authors' study was designed to investigate by means of large tissue sections the frequency with which occult carcinoma arises simultaneously in multiple portions of the prostate gland and to plot the distribution of these lesions. An ancillary purpose was investigation of enzymatic activity of neoplastic and non-neoplastic prostatic epithelium by histochemical means.

At the Cincinnati General Hospital, 225 prostate glands were secured at necropsy from men over 50 years of age. No selection was made except for the exclusion of all cases in which a diagnosis of prostatic carcinoma had been made before death.

Among the 220 glands examined, 7 carcinomas, unsuspected clinically, were recognized grossly by the prosectors. Among the 213 remaining glands in which no gross evidence of neoplasm was detected, 64 (30%) were found to contain one or more foci of carcinoma when surveyed microscopically. Examination of a single transverse section was the rule; no effort was made to examine several sections. In 40 (56.4%) only a single neoplastic lesion was detected; in 26 (36.6%) there were multiple lesions, and in 5 (7.0%) the entire section was diffusely affected. Undoubtedly, examination of multiple sections would have increased the yield of multicentric carcinomas.

Due to multiple lesions there was lateral lobe involvement in 89.1% of cases and posterior lobe involvement in 33.3%.

Review of 17 standard reference works in urology, pathology, and neoplastic disease reveals that all call attention to the great frequency of carcinoma of the prostate in elderly men. In 14 of the references the cancer is described as originating predominantly in the posterior lobe while the occurrence of multicentricity is not mentioned. The latter condition appears to warrant greater emphasis in view of the frequency with which it has recently been noted in the literature, and confirmed by the present investigation. In this study, among 66 examples of carcinoma in which the entire gland was not affected, 107 separate sites of carcinoma were encountered. The frequency with which three and more foci were identified in a single gland is especially noteworthy and may offer a clue in explanation of diffuse glandular involvement which is observed with such high frequency in cases of clinically overt prostatic cancer.

The predilective localization of early carcinoma of the prostate shown by the authors is at variance with that of most other reports which locate the lesion in the posterior lobe more than elsewhere. Actually, there is considerable evidence to indicate that no sharp demarcations exist between the "lobes" of the prostate and what appears to be posterior lobe in one plane may appear to be lateral lobe in another. Some authors advocate abandonment of the allegedly artificial division of the gland into lobes, substituting a zonal division into central, middle, and peripheral regions, with neoplasms predominating in the last location. At all events, it should be recognized that the majority of prostatic carcinomas probably do not arise or present posteriorly. This observation should serve to reduce the sense of security conveyed to the physician by the absence of nodulation or induration on rectal examination or the absence of carcinoma on needle biopsy of the posterior portion of the prostate.

On histochemical study, neoplastic acini generally manifested activity similar to that of normal acini, but with seemingly greater intensity because of the concentrations of neoplastic elements. Total disorganization of prostatic architecture in zones of neoplastic alteration was clearly revealed in sections prepared to demonstrate enzymes. (Butler, J., et al., Incidence, Distribution, and Enzymatic Activity of Carcinoma of the Prostate Gland: A.M.A. Arch. Path., 68: 243-251, September 1959)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Treatment of Cancer of the Extremities
by Perfusion Techniques

In order to improve life expectancy and obtain better palliation in the treatment of malignant disease, emphasis has recently been directed toward the use of chemotherapeutic agents. In general, cancerocidal drugs have been used as adjuvants to palliation in extensive regional or disseminated malignant conditions. The limiting factor to the use of chemotherapy, however, has been the toxic effects on bone marrow and the gastrointestinal tract. In an attempt to limit these systemic toxic effects and obtain the benefit of increasing dosage, a method has been developed whereby the tumor-bearing area could be temporarily isolated and perfused by utilizing a pump-oxygenator.

Methods were developed in the laboratory for the isolation and perfusion of the extremities, mid-gut, and liver in the experimental animal. These procedures also have been applied clinically for perfusion of the extremities, lung, breast, pelvis, oropharynx, and total body. To date, 73 cases have been treated by this method, including the patients of the current report. Perfusion of the lower extremity is accomplished through the external iliac, the common femoral, or the superficial femoral vessels, depending upon the location of the tumor. In the upper extremity, the subclavian, axillary, or brachial vessels are used.

Techniques and dosages employed in perfusion of the extremities are described and tabulated. The lower extremity, perfused through the common femoral artery, will tolerate the usually recommended systemic dose. This represents a six to eightfold increase in concentration of the drug since the lower extremity constitutes one-sixth or less of the total body mass. Animal experiments suggest that the amounts of chemotherapeutic agents may be increased beyond the limits described, and in recent clinical experience this has been done without apparent increase in toxic effects.

The current report which includes only perfusion of an extremity lists 45 perfusions performed in 37 patients, including 17 with malignant melanoma, 17 with some type of sarcoma, and 3 with primary or metastatic carcinoma of the extremity.

The authors acknowledge that at present it is impossible to evaluate the results of treatment in these patients because of the short time the study has been in progress. An attempt has been made to determine the present status of each patient, the fact being kept in mind that their status is constantly changing.

Among the 17 patients with malignant melanoma, 14 had disease confined to the lower, and 3 to the upper, extremities. Of 13 patients treated for palliation, 3 are dead. Two of these had the local tumor controlled by perfusion, but subsequently died of distant metastases. Among the 10 patients still living, 3 have recurrent disease, and 7 are considered to be in a quiescent stage. It must be emphasized that this group is composed of patients with far advanced

but regionally confined disease which, if treated conventionally, would require radical amputation.

Twenty perfusions have been carried out in 17 patients with sarcoma of the extremities. In 10 the lesions were confined to the lower extremity and in 7 to the upper extremity. Of the 4 patients in whom perfusion was used as an adjunct to surgical excision, one is dead, in another the lesion recurred and is quiescent after retreatment, and in 2 the disease appears to be controlled. Of the 13 treated for palliation, 5 are dead. Among the living patients 4 have had varying degrees of regression of their tumors with subsequent recurrence, while in one the lesion is quiescent and in 3 the lesions are controlled.

Relatively few patients with carcinoma of the extremities have been treated by this method.

Local complications in the extremities have been relatively minor. There has been no evidence of arterial or venous thrombosis and edema of the extremity has not been a serious problem. When the dosage has been high, intense erythema of the skin has occurred followed by brawny edema similar to that observed following x-ray therapy. The administration of cortisone seems to speed resolution of this process.

Systemic complications have been minimal following isolated perfusion of the extremities. The amount of nausea or vomiting immediately following the operative procedure has been no greater than that seen after general anesthesia. Depression of bone marrow has been a problem in some cases; however, if isolation is adequate the depression has been minimal. Usually, all elements are depressed, but the white blood cell count is the easiest and most reliable to follow.

It should be emphasized that the tumors included in this series do not respond ordinarily to conventional methods of chemotherapy or irradiation. Thus, it can be assumed that the response observed in many of these patients was the result of the isolation-perfusion technique.

At present, an attempt is being made to improve the results by using combinations of drugs rather than a single agent. Attempts also are being made to improve the selection of more specific chemotherapeutic agents. Studies are under way to develop a sensitivity test.

Although there are many possible uses for the techniques of perfusion, the principal concern is the evaluation of highly toxic agents whose therapeutic usefulness is limited by their toxicity. (Krementz, E. T., et al., Treatment of Malignant Tumors of the Extremities by Perfusion with Chemotherapeutic Agents: J. Bone & Joint Surg., 41-A: 977-987, September 1959)

NOTE: A report by R. C. Hickey, et al., in the September A. M. A. Archives of Surgery describes extracorporeal pump perfusion of radioactive isotopes and nitrogen mustard as adjuncts to external radiation therapy and analyzes results in five adults with advanced cancer of the lower extremities.

Conservative Treatment of Acute Appendicitis

In the years preceding 1953, most patients with acute appendicitis and abscess formation were treated conservatively in the surgical clinic of the author at Rotherham Hospital (England). The results were so satisfactory that with the advent of a wider range of antibiotics, subsequent patients with acute appendicitis and without abscess formation were treated conservatively.

The 5 years under review, 1953 - 1957, fell into three phases. The first phase was from 1953 to 1955 when all patients with acute appendicitis of longer than 24 hours' duration were treated conservatively. During 1956, the second phase, all patients with acute appendicitis were treated conservatively. In any case in which the disease recurred after conservative treatment, appendectomy was performed. All patients were advised to have an interval appendectomy. The third phase was in 1957. During this year all patients with acute appendicitis were treated conservatively. In any case of recurrence of acute appendicitis after conservative treatment, appendectomy was done. No interval appendectomy was done except at the request of the patient, the patient's parents, or the family physician.

Treatment given is rest in bed in any position the patient finds comfortable; nothing by mouth except water which is given freely; 6-hour injections of penicillin, 250,000 units, with streptomycin, 0.5 gm. In cases of severe involvement, chloramphenicol, oxytetracycline, or other antibiotics may also be given. Pain is relieved by Pethidine and/or morphine, but usually little is needed after the first 24 hours. If vomiting is marked, gastric suction is instituted, intravenous infusions are given, and total daily fluid intake and output are carefully balanced.

When pain and sickness have subsided and temperature and pulse have fallen, dextrose, milk, and other fluids are given by mouth. There is a gradual return to normal diet, varying in time according to the severity of the attack. No purgatives or enemas are given. Liquid petrolatum, 15 ml. night and morning, is given by mouth. As the condition subsides, a glycerin suppository is used if necessary.

In cases of appendiceal abscess the same treatment is given, resolution usually occurring. If this does not happen, a waiting policy is adopted until the abscess either presents at the anterior abdominal wall or can be palpated rectally as a bulge in the pelvis. In the former case, when the percussion note is dull, the patient is placed under general anesthesia and wide-bore needle is passed through the abdominal wall until pus can be aspirated. A stab incision is made with a scalpel along the needle, a large artery forceps is used to enlarge the stab, the pus is evacuated, and a small drainage tube is inserted. When a bulge in the pelvis is palpated rectally, the sphincter ani is dilated under anesthesia and the abscess is opened with a sharp-pointed sinus forceps at the point of fluctuation. No drainage is necessary.

During the first phase, 137 patients with acute appendicitis of more than 24 hours were treated conservatively with one death—that of a man aged 78

who seemed to recover from appendicitis, but died from complications of cardiac failure and pneumonia. During the second phase, 163 patients with acute appendicitis were treated conservatively with no deaths. Acute appendicitis recurring after conservative treatment was treated by appendectomy; there were 22 recurrences without any deaths. Forty-three underwent interval appendectomy without any deaths. During the last phase, 171 patients with acute appendicitis were treated conservatively, again with no deaths. Recurrent acute episodes developed in 26 who underwent surgery without any fatalities. Nine interval appendectomies were performed successfully.

Perhaps the most important advantages of conservative treatment are low mortality and morbidity. Confidence in conservative treatment permits observation and time for investigation and consultation. This automatically leads to fewer mistakes in diagnosis and treatment. Many conditions may make conservative treatment and postponement of operation desirable. If appendectomy is to be done, it is better done during a quiescent period, resulting in minimal postoperative risks. The advantage most appreciated by the patient is the avoidance of a surgical operation.

Perhaps the most important disadvantage is the difficulty of diagnosis. In most cases, a clear-cut diagnosis can be made and no difficulty exists. Another disadvantage may be in the economic field. However, the ultimate aim is the good of the patient, and undue weight should not be given to economic considerations. A patient with acute appendicitis treated conservatively nearly always can be restored to normal as quickly as by operation—if not more quickly. Especially in cases of recurrent appendicitis, there is economic loss of the patient's time and of hospital bed space. Even in these cases, the author continues to give conservative treatment. (Coldrey, E., Five Years of Conservative Treatment of Acute Appendicitis: J. Internat. Coll. Surg., 32: 255-261, September 1959)

* * * * *

Gastric Cooling in Management of Peptic Ulcer

At the University of Minnesota Medical Center, for a period of one year, the authors have employed the technique of local gastric cooling in the control of massive gastric hemorrhage. Their experience to date affirms the belief that this procedure possesses merit, but it is apparent that further experience is required to learn precisely what some of the advantages and disadvantages may be.

One of the important items concerning which prompt decision is necessary is whether early operation should be undertaken as soon as the vital signs have become stabilized and bleeding has stopped, following initiation of local gastric cooling. Also, (1) will local gastric cooling alone suffice? (2) Should the patient be taken directly to the operating room with the cooling device in

situ as soon as vital signs are stabilized? (3) Should there be a delayed operation?

Experience of the authors provides only incomplete answers. In bona fide peptic ulcers, duodenal or gastric, control of the bleeding has usually sufficed. However, in steroid induced ulcers and those following severe bodily insults, recurrence of bleeding has been frequent enough to suggest the necessity of operative intervention as soon as bleeding comes under control. Similar experience with hemorrhagic gastritis is reported.

Studies upon man and dog, employing local gastric hypothermia, indicate that gastric digestion is virtually suspended at temperatures of 10 to 14° C. Additional evidence has been gained for the conclusion that pepsin is primarily the active proteolytic factor suppressed by cooling.

Earliest observations were made employing cooling through a gastric balloon. Studies were made to ascertain whether gastric cooling might be achieved by simply perfusing the stomach directly with a solution continuously circulated through a double lumen tube. Results indicated that the method was practical, and that the inflowing cooling solution could be several degrees above the freezing point. The ideal agent with which to perfuse the gastric mucosa remains to be determined.

This report details the results of treatment of 30 patients with massive gastrointestinal hemorrhage. In all cases, the diagnosis of active bleeding was established by aspiration of bright red blood through a nasogastric tube and by evaluation of history, physical signs, and previous blood replacement. Normal rectal temperature was maintained by peripheral warming of the patient, while cooling was accomplished by techniques previously reported.

Eleven patients were bleeding from duodenal ulcer. At the institution of gastric cooling, three-fourths of these patients were in shock. Prompt and permanent cessation of bleeding occurred in all instances within 3 to 6 hours after institution of local hypothermia. Three other patients, bleeding from duodenal ulcer, were treated. Their bleeding was acute, following marked stress or prolonged steroid therapy. In these patients, massive bleeding recurred within 2 to 5 days following the first successful treatment. Recooling of 2 of them resulted in complete cessation with no further hemorrhage.

Two patients were treated for massive hemorrhage from gastric ulcer. One stopped bleeding within a short time and required no further treatment. The other had an antral lesion which appeared to be malignant. Therefore, after 3 hours of cooling, when hemorrhage appeared to be controlled and blood loss replaced, the lesion was removed surgically and proved to be benign. Both patients were alive and well at the time of the report.

Five patients have been treated for bleeding esophageal varices. Control of hemorrhage was successful in 3 patients who subsequently underwent surgery. Two patients died, one despite control of hemorrhage by hypothermia, and the other in early postoperative period when bleeding failed to be controlled by the technique. The cause of bleeding in 2 patients was hemorrhagic

gastritis. Both responded to local gastric hypothermia with complete cessation of hemorrhage. However, bleeding recurred within 24 hours and both underwent an immediate definitive surgical procedure. One patient died late in the postoperative period from cardiac complications but without further hemorrhage.

Cooling of the stomach retards and virtually inhibits active gastric digestion. This effect is primarily due to: (1) depression of peptic activity, (2) suppression of gastric secretion; and (3) diminished blood flow. At the temperature of the cooled stomach, peptic activity is essentially suspended, gastric secretion is diminished 75% or more, and gastric venous outflow, which undoubtedly reflects arterial inflow, is decreased approximately 66%.

The volume and proteolytic activity of gastric juice appears to rebound following cooling, a circumstance which suggests definitely the need for early operation if the intragastric or intraduodenal infusion of a continuous cold skim milk drip initiated immediately and administered through an indwelling nasogastric tube, fails to control the situation. (Wangensteen, O. H., et al., Studies of Local Gastric Cooling as Related to Peptic Ulcer: Ann. Surg., 150: 346-360, September 1959)

* * * * *

Experience in Research - Its Value to the Practicing Physician

There is no need to document the value of medical research as a major factor in the constantly improving well-being of mankind. It could be convincingly contended that knowledge of health and the control of disease have progressed farther in the last 50 to 60 years than in all the preceding ages of man.

Furthermore, it is unnecessary to declare the value of participation in research for a medical student who anticipates a career of either full-time investigation or part-time clinical research supplementing the practice of medicine.

It is self-evident that research must continue to increase the understanding of man in health and disease, and that participation in it must begin at an early stage in the education of the physician who intends to pursue further research. Some training in research can contribute markedly to the education of a physician who is engaged entirely in clinical responsibilities, as is necessarily the case with most physicians. Research experience of a physician who soon will become fully engaged in clinical practice sharpens his judgment and enhances his evaluation of the research of others.

Research has been called "a way of making nature talk." But nature guards her secrets—is loath to speak. Research reveals the difficulty of discovery. Only the student or physician who has actually participated

in research is completely aware of the tremendous effort and patient toil exacted of the investigator. Characteristic of the unhasty pace of research discovery is the story of insulin, with the long and labored span of three decades between the experimental production of diabetes in dogs and the beginning of its control in man.

Even though a physician may do no research or may engage in a limited specialty, his past research experience may provide a rewarding special interest. The postgraduate resident physician who spends only 3 to 6 months in a cardiac catheterization laboratory will be prompted to follow subsequent findings in this field with considerable gratification.

Research develops an alertness to the apparently inconsequential. Incidental observations may prove to be far more important than the original goal sought in the experiment. Alertness to apparently insignificant detail has yielded many a discovery. Likewise, clinicians who rise above the common lot have become sensitive to the minute, the obscure, and the incongruent.

Research provides lessons in teamwork which are equally necessary in clinical practice, particularly in dealing with complicated problems. The physician who does not learn this lesson of teamwork in the practice of medicine and the employment of consultations by a collaborating group will be much less than a good physician.

Research fosters a respect for persistent routine. Inspiration and glamour are not prominent in the constant plodding which is demanded. Rewards of research or of medical practice demand countless inglorious hours of stubborn work as routine as may be found in the performance of many a less pretentious task than medicine.

Research provides knowledge and familiarity with one of the highways of discovery. Study and reading essential in carrying out a research project are far different from the more casual reading of such material.

Discovery following research is usually modest. Often it is a negative finding—the posting of a warning on a dead-end street. Yet it is a discovery, new knowledge, light in the darkness, a penetration beyond the frontier. Discovery, great or small, of what was never before known, is an adventure to be cherished, an experience likely to color a physician's entire outlook on his work. The physician who is imbued with the spirit of investigation augmented by research experience, will be a little more persistent in his diagnostic searchings, therapeutic efforts, and self-evaluation. (Johnson, V., Value of Research for the Graduate and Postgraduate Medical Student: J.A.M.A., 171: 24-29, 5 September 1959)

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget. (19 June 1958)

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New Building for Radiation Exposure Evaluation

RADM Bartholomew W. Hogan, Surgeon General of the Navy, has announced that final plans have been completed for construction of a new two-story Radiation Exposure Evaluation Building at the National Naval Medical Center, Bethesda, Md. Ground has been broken for this construction, and completion is scheduled for early in 1960. The new building, covering 8,100 square feet of floor space, will be the first of its kind for military usage and is considered another milestone in the progress of Navy Medicine.

The primary purpose of the facility will be evaluation and treatment of persons suffering excessive radiation exposure, either accidentally or therapeutically. However, in order to be prepared for handling any such potential future emergencies, other functions will be established which will further information that is already known relative to biologic and physiologic changes that occur following radiation exposure of varying degrees, and will provide for accumulation of data on which to base standards for determination of dosage of exposure received.

CAPT E. R. King MC USN, Chief of Radiology, U. S. Naval Hospital, and Director, Department of Nuclear Medicine, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md., stated that routine investigational and clinical procedures will be carried out in the facility on a day-to-day basis. Such studies will include: evaluation of cases of certain hematologic dyscrasias and terminal cancer being treated by total body radiation or massive chemotherapy with or without marrow transplants; study of radiation therapy cases including metabolism, clinical pathology, histology, hematologic studies, and possibly chromatography of body fluids and special radioisotope studies; post-treatment care and management of patients receiving therapeutic doses of radioisotopes and radium; and special studies on persons exposed to, or possibly exposed to, ionizing radiation to include examination of the lens of the eye and sperm. Assisting in establishing pertinent studies and in care and management of patients receiving total body radiation therapy will be CAPT G. W. Hyatt MC USN, CDR W. McFarland MC USN, LT T. G. Hartney MC USN, and LT H. A. Pearson MC USN.

The building will contain a receiving room where examinations may be carried out to determine the extent of the injuries of the patient. If the patient is contaminated with radioactive material; decontamination will be accomplished in specially designed spaces. A surgical room will be available in which minor surgery, debridement, first-aid, and other procedures may be carried out. Four low-background total body counters are planned for installation in specially constructed rooms where patients may be studied relative to the possibility of internally acquired radioactive materials. The counters are expected to be of value from a medico-legal aspect as well as to contribute immeasurably to the continued and expanding radio-biologic and nuclear medicine research program. The application of total body counting in clinical medicine wherein radioisotopes are used is almost unlimited.

In addition to initial evaluation, other adjunctive facilities for care and study of patients will be provided in the new building. These will include a hematology section where routine blood cell studies and special investigational procedures, and bone marrow transplants may be performed as indicated. The radiohistology section will perform autoradiography studies as well as study activation analysis of tissues utilizing the nuclear reactor that is now a part of the department. Chemistry laboratories will be added for special chemical studies in addition to routine investigational procedures. The radioassay laboratory will provide for analysis of degree of radiation exposure of tissues and body fluids as well as breath samples. A plutonium analysis laboratory is currently in operation in the department, the functions of which will be expanded after the new building is completed.

Three rooms have been designed for patient care. These will be "clean" rooms, with every attempt made to keep them in as near sterile conditions as possible for nursing care of patients who may have received high doses of ionizing radiation, either from an accidental exposure or in the form of therapy for an incurable cancer. Under circumstances of larger numbers of casualties, an attached temporary ward already existing will be available for care of greater numbers of patients.

CAPT R.B. Williams MC USN, CAPT F.W. Chambers MSC USN, CDR G.L. Lewis MC USN, and LT T.B. Mitchell MSC USN have assisted in the planning of the facility.

One of the interesting facets of the unique structure will be use of old 8-inch thick steel plates for radiation shielding in the counting chambers. Because environmental material in these chambers must necessarily be as free from radiation contamination as possible, it was necessary to locate steel that was fabricated before 1945, the time of the first atomic explosions. After considerable search for suitable material, old plates meeting specifications were obtained from a Naval Ordnance Depot in South Charleston, W. Va.

Following completion, the new building, with its various facilities, combined with the work of personnel involved in the many facets of this rapidly expanding new field of medicine, will enable significant contributions to be made to the knowledge of effects on the body of ionizing radiation, and further the position of Navy Medicine in this field.

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In the Medical News Letter of 23 October 1959, page 17, the last entry of "In Memoriam" should read: CAPT Raymond O. Nickell DC USN.

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Course in A B C Warfare Defense

Title: A B C Warfare Defense, Course #5
Date: 4-29 January 1960. Report prior to 2200, 3 January 1960,
Personnel Office, U. S. Naval Schools Command, Bldg. 28
Place: U. S. Naval Schools Command, Naval Station, Treasure
Island, San Francisco, Calif.
Security
Clearance: SECRET
Class Quotas: 50 (10 Army and Air Force; 40 Navy—30 Medical Corps,
5 Dental Corps, 5 Medical Service Corps)

Objectives

The course is designed for experienced active duty Naval Medical Department officers. Medical aspects of modern warfare and military peacetime operations, including problems incident to atomic, biologic, and chemical weapons systems, nuclear propulsion, mass casualties, and isotope programs will be stressed. Military aspects of weapons systems and military countermeasures will be considered also so that Medical officers may function effectively on a staff and can reasonably assess medical compromises imposed by the military situation. Outstanding speakers, both military and civilian, will be featured on the program. Visits will be made to the Navy Radiological Defense Laboratory and the Naval Biological Laboratory, and practical exercises and drills will be conducted. All students will be supplied texts on a permanent retention basis.

Eligibility

1. Medical Corps. Requests for attendance are invited from Medical officers. Reserve officers whose attendance would obviously assist them in the performance of their duties will be considered, provided they have a minimum of 20 months obligated service remaining.

2. Dental Corps. Officers to attend will be selected by the Bureau.

3. Medical Service Corps. Requests are invited from senior Medical Service Corps officers. Priority will be given to officers assigned duties on Fleet and/or District Staffs, and Administrative Officers of Naval Hospitals.

Interested officers with the above requirements must submit a letter request via their Commanding Officers, to reach the Bureau of Medicine and Surgery (Attention: Code 316) prior to 15 November 1959.

TAD orders will be issued to selected candidates. Travel and per diem expenses will be charged against Bureau training funds.

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In the News Letter of 23 October 1959, Vol. 34, No. 8, p. 34, the following credit line was omitted for article, "Cardiac Stress Two-Step Test," (L. E. Lamb, M.D., USAF Medical Service Digest, April 1959)

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From the Note Book

RADM Andrews Reports to Bureau. RADM Cecil L. Andrews MC USN, recently appointed to flag rank, has taken over his new assignment as Assistant Chief of the Bureau for Personnel and Professional Operations. Prior to reporting to the Bureau he served as Commanding Officer of the U.S. Naval Hospital, St. Albans, L. I., New York. (TIO, BuMed)

CAPT Gell Heads AGARD Committee. CAPT C. F. Gell MC USN, Special Assistant for Medical and Allied Sciences of the Office of Naval Research, was elected Chairman of the Subcommittee on Acceleration and Bio-Assay Techniques for Human Centrifuges at the recent meetings of the Aeromedical Panel of NATO's Advisory Group for Aeronautical Research and Development (AGARD). CAPT Gell, U.S. Navy Member of the Panel, attended the meetings in Aachen Germany. The Subcommittee will study problems of international standardization of nomenclature and bio-assay end-points for centrifuges. (TIO, ONR)

CAPT Goodwin Heads Aviation Division. CAPT Merrill H. Goodwin MC USN has assumed duty as Assistant Chief of the Bureau for Aviation Medicine and Director, Aviation Medicine Operations Division following the retirement of CAPT Oran W. Chenault MC USN on 30 September 1959. (TIO, BuMed)

Stein-Leventhal Syndrome. The Clinical Center of National Institutes of Health has launched an investigation of the role of adrenal gland in Stein-Leventhal syndrome and has invited the cooperation of interested physicians in referring laparotomy-proven cases. Further information on referrals may be obtained from Dr. J. F. Rall, Chief, Clinical Endocrinology Branch, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Md. (Washington Report on the Medical Sciences, 28 September 1959)

Yellow Fever. Research at the Armed Forces Institute of Pathology and the Army Biological Laboratories at Fort Detrick, Md., made the unexpected discovery that yellow fever virus first strikes not the liver cells, as previously thought, but the Kupffer and reticulo-endothelial cells. The finding, reported by H. F. Smetana, M.D., Chief of the Pediatric Branch, AFIP, not only makes it possible to diagnose yellow fever during the incubation period instead of a week later, but may have significant bearing on the early detection and behavior of other virus diseases. (AFIP Letter, 1 October 1959)

Pamphlets on Alcoholism. A list of pamphlets available on various aspects of the problem of alcoholism—for the physician as well as the concerned lay person—appears in any of the A. M. A. Archives for September 1959. For a small fee these pamphlets may be obtained from the American Medical Association, Order Department, 535 N. Dearborn St., Chicago 10, Ill.

DENTAL**SECTION**Host Response to Heterogenous Anorganic Bone

Previous short-term studies have shown that heterogenous anorganic bone implants within an osseous bed satisfy two major criteria for a successful transplant—lack of foreign body reaction and subsequent bone union with the host. Long-term studies are in process of evaluating whether the third criterion, functional reconstruction of the graft, occurs within anorganic bone implant sites.

Within a 2-year period, anorganic bone has been placed in 140 maxillofacial bony defects in 10 adult Rhesus monkeys and 42 mongrel dogs, 54 pulpal applications in 42 dogs, 20 lumbar and 20 lumbosacral spinal fusions in 40 dogs, 40 long-bone defects in 20 dogs, and 69 maxillofacial and long-bone implants in human patients. All preoperative implant sites were free of any apparent infection or visible inflammatory process. Observation at 30, 60, and 90 days and at one year postoperatively indicated that the rate and extent of remodeling in these implants varied with the location, preparation, and size of the implant site.

Implants placed in contact with exposed, bleeding marrow-vascular spaces in long bones and vertebral defects exhibited a greater degree of remodeling than similar implants placed within the relatively avascular walls of sockets and other extraction defects. Residual, trapped, unresorbed anorganic cortical or spongy chips appeared to be disintegrating in healed, one-year postoperative maxillofacial graft sites in adult Rhesus monkeys. Response of pulpal tissues to 200/325 mesh anorganic bone or dentine was similar to calcium hydroxide controls. (H. W. Lyon, C. A. Ostrom, F. L. Losee, NMRI, Bethesda, Md.; L. A. Hurley, New York Orthopedic Hospital; P. J. Boyne, Marine Corps Base, Twenty-Nine Palms, Calif., Abstract: J. Dent. Res., July - August 1959)

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Role of Dentists in Civil Defense

The role of dentists in civil defense has been defined. For many years, civil defense agencies have recommended that, in a major disaster, dentists should act as allied medical personnel to assist physicians in the care of the injured and, when no physician is at hand, to direct and perform casualty care. Under this policy thousands of dentists in all parts of the country have engaged

in first-aid and casualty care training courses to enable them to meet these new and unfamiliar responsibilities. Many dentists, however, have questioned the propriety of their engaging in such a program and many medical men have not subscribed to it. This has given rise to uncertainty and confusion in dental civil defense activities. Because casualty care is definitely a medical function and any training in the handling of body wounds, excluding the mouth, must be given by qualified medical teachers, the concurrence of the medical profession is most important.

Until now, no official pronouncement has come from organized medicine approving of such training of dentists or their participation in emergency casualty care. However, in fulfillment of a contract with the Office of Civil and Defense Mobilization, the American Medical Association has recently submitted to the Office of Civil and Defense Mobilization, Report on National Emergency Medical Care. This report, approved by the American Medical Association Board of Trustees, is based on the work of a number of Task Forces in which representatives of the American Dental Association participated.

Roles of the several allied medical personnel have been defined and listed. Among these, recommendations for dentists are stated as follows:

- a. First-aid, including, but not limited to, artificial respiration, emergency treatment of open chest wounds, relief of pain, treatment of shock, and the preparation of casualties for movement
- b. Control of hemorrhage
- c. Attainment and maintenance of patent airway, and intratracheal catheterization to include tracheotomy
- d. Proper and adequate cleansing and treatment of wounds
- e. Bandaging and splinting
- f. Triage of facial and oral injury cases
- g. Oral surgery
- h. Administration of anesthetics under medical supervision
- i. Assisting in surgical procedures other than oral
- j. Insertion of nasogastric tubes to include lavage and gavage, as directed
- k. Administration of whole blood and intravenous solutions, as directed
- l. Administration of parenteral medications, as directed
- m. Catheterization of males and females
- n. Administration of immunizing agents, as directed

Medical Objectives of Disaster Training. In view of the anticipated disparity between the number of casualties and the number of physicians who will be available, as well as the number of injuries amenable to competently administered self-aid and first-aid treatment, subsequent to a mass attack on the United States, it is imperative that dentists receive training and become

proficient in the practice of disaster dentistry and, in addition, receive such training in disaster medicine as will enable them to take effective lifesaving and first-aid measures and to assist the medical profession by performing approved additional functions. (Dental News Letter, Office of Civil and Defense Mobilization, September 1959)

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NDS Visited by Members of Federation
Dentaire Internationale

The U.S. Naval Dental School, NNMC, Bethesda, Md., was host on 24 September 1959 to about 70 members of the Federation Dentaire Internationale who were visiting dental schools and research centers in the area.

CAPT E. E. Jeansonne DC USN, Acting Commanding Officer, welcomed the group to the Dental School, and introduced RADM C. W. Schantz DC USN, Assistant Chief, Bureau of Medicine and Surgery (Dentistry) and Chief, Dental Division, Department of the Navy, who greeted the visitors on behalf of the Navy Dental Corps.

The group saw a demonstration of anorganic bone by CDR H. W. Lyon DC USN, NMRI, and CAPT D. E. Cooksey DC USN, Head of the Clinical Services Department and Head, Oral Surgery Division, U.S. Navy Dental School.

CAPT H. J. Towle, Jr., DC USN, Head, Audio-Visual Department and Head, Maxillofacial Prosthetics Division, lectured on the casualty care courses taught at the Dental School, and described emergency procedures which can be practiced on Mr. Disaster, the manikin developed for casualty care training by the Navy Dental Corps.

The group then toured the Dental School.

Homelands of the visitors included Austria, Belgium, the British Colony of Singapore, England, Finland, France, Germany, Iraq, Italy, Luxemburg, The Netherlands, Norway, and Switzerland.

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Exhibit Shown at Dental Congress

The U.S. Navy Dental Corps exhibit, "Dentistry in the Modern Age," was shown at the 1959 Mid-Continent Dental Congress in St. Louis, Mo., 1 - 4 November 1959.

The exhibit was composed of three units and a transilluminated mural illustrating modern dental scientific progress. One section of the exhibit showed a dental research laboratory in Antarctica; another part illustrated

the use of the TV camera as a medium for training showing dental facilities in the Navy, and a TV studio; a third section portrayed several aspects of research, including evaluation of implant bone, function of the salivary gland, and blood volume studies with the use of radioactive isotopes.

CAPT J. V. Westerman DC USN, Head, Personnel Branch, Dental Division, Bureau of Medicine and Surgery, monitored the exhibit.

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Personnel News

CAPT H. J. Wunderlich DC USNR, Head, Dental Reserve Branch, Dental Division, BuMed, recently visited USNR Dental Companies in Pittsburgh, Pa. CDR W. A. George DC USNR, Commanding Officer, Dental Reserve Company 4-10, University of Pittsburgh, acted as host for the visit. CAPT Wunderlich met with Reserve Dental officers of Companies 4-2 and 4-10 and Reserve Dental officers of the Pittsburgh area. CAPT J. E. Flint DC USNR, is Commanding Officer of Reserve Dental Company 4-2.

CAPT R. B. Wolcott DC USN was elected to the office of President-Elect of the American Academy of Gold Foil Operators for the year 1959 - 1960. CAPT Wolcott is presently on duty at the U. S. Naval Dental Research Facility, Administrative Command, U. S. Naval Training Center, Great Lakes, Ill.

CAPT F. T. Wigand DC USN, Head of Oral Surgery Section, Dental Service, U. S. Naval Hospital, Jacksonville, Fla., presented a table clinic at the Centennial Session of the American Dental Association in New York City. CAPT Wigand is certified by the American Board of Oral Surgery.

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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RESERVE**SECTION**Transfer to Retired Naval Reserve Without Pay

Upon application, members of the Naval Reserve may be transferred to the Retired Reserve List within the discretion of the Secretary of the Navy. The eligibility requirements for such transfer are:

1. Completion of a total of 20 years of honorable service in any component of the Armed Forces or Armed Force without component.
2. Physical disqualification for active duty as a result of a service-connected disability regardless of total years of service completed.
3. Completion of 10 or more years of active Federal commissioned service.
4. Physical disqualification for active duty, not as a result of own misconduct, regardless of total years of service completed.
5. Attainment of age of 37 years with the following provisions:
 - a. Completion of a minimum of 8 years of satisfactory Federal service subsequent to 1 July 1949,
 - b. Completion of a minimum of 8 years of honorable service on active duty in time of war or national emergency for at least 6 months; or
 - c. Consistent support of the Armed Forces in an outstanding manner as determined by the Secretary of the Navy.

In time of war or national emergency declared by Congress, or when otherwise authorized by law, members of the Retired Reserve may be ordered to active duty without their consent only when the Secretary of the Navy, with approval of the Secretary of Defense, determines that adequate numbers of members of Reserve components in an active status are not readily available. All retired personnel will keep the Chief of Naval Personnel and the commandant of the naval district in which they reside informed of any change of address.

Members of the Retired Reserve are prohibited from wearing the uniform in connection with nonmilitary, personal, or civilian enterprises, or activities of a civilian nature.

A member is normally transferred to the Retired Reserve in the grade in which serving at the time of such transfer. There are certain exceptions to this rule:

1. A member who has served satisfactorily in a higher grade than that held at the time of transfer will be so transferred in the higher grade.
2. Unless entitled to the same or higher grade under (1) above, an officer recommended for promotion to any grade under the Reserve Officer

Personnel Act of 1954, or found qualified for Federal recognition in a higher grade, who, at any time prior to promotion is found incapacitated for service by reason of physical disability, is entitled, upon transfer to the Retired Reserve, to be so transferred in the grade for which recommended. However, no increase in pay or benefits shall accrue by reason of such promotion unless otherwise provided by law.

3. Unless entitled to the same or higher grade under either (1) or (2) above, an officer who has been specially commended by the Head of the Executive Department for performance of duty in actual combat for an act or service performed prior to 1 January 1947, shall, after his transfer to the Retired Reserve, be advanced to the grade next higher than that in which he was serving at the time of transfer to the Retired Reserve.

Requests for transfer to the Retired Reserve should be addressed to the Secretary of the Navy via (1) commandant of the naval district in which residing and (2) Chief of Naval Personnel. Such request should briefly state the reason for making the request and the effective date of retirement desired. All retirements become effective on the first day of the month and may not be effected retroactively.

Additional information concerning this subject is contained in BuPers Instruction 1820.2A.

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Qualifications Questionnaire Revised

Reserve officers on inactive duty are receiving the Annual Qualifications Questionnaire. Distribution of these questionnaires by district commandants, CNARESTRA, and area commanders commenced on 1 October 1959.

A revised form of the questionnaire, NavPers 319 (Rev 1-59), has been placed in the supply system to be issued when stocks of the older form, NavPers 319 (Rev 4-56), are depleted. Officers may receive either the new or the old form this year. The new form simplifies the eighth item, "Military Service."

Effective this year, officers will be required to complete the form in its entirety every year. Incomplete or "no change" entries have complicated the work of selection boards considering officers for promotion to the next higher grade, disposition boards considering officers for retention in, or release from, the Naval Reserve, and classification analysts reviewing officer qualification records.

When the "quals" questionnaire is received, it is to be filled out in detail and returned as soon as possible. It is advantageous to have the record as complete and up to date as possible.

(Naval Reservist, September 1959)

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PREVENTIVE MEDICINE

Eastern Equine Encephalitis

The New Jersey State Department of Health has reported an outbreak of eastern equine encephalitis occurring during the month of September 1959. A total of 29 clinically diagnosed cases with 19 deaths have been reported. Definite serologic confirmation of diagnosis has been obtained in two cases, and in three others the presumptive serologic tests were positive. The cases and deaths have been reported from six counties in the southern half of the state and have occurred mainly in old persons and the very young. The case fatality rate of 65% is not unusual for this type of viral encephalitis. The patients have lived in rural wooded areas 5 to 10 miles from the sea coast where an increase in mosquito population occurred in August. Species of Culex and Culiseta melanura mosquitoes are implicated as vectors. In addition to the human cases, infections in horses have been reported, five of which were confirmed by isolation of the virus. The disease has also been reported to be present in some flocks of pheasants on breeding farms.

The arthropod-borne (ARBOR) viral encephalitides are a group of acute inflammatory diseases of short duration, involving parts of the brain, spinal cord, and meninges. Each form of the disease is caused by a specific virus—eastern equine, western equine, St. Louis, Venezuelan equine, Japanese B, Russian spring-summer, West Nile, Murray Valley, and many others. Severe infections usually have an acute onset, high fever, meningeal signs, stupor, disorientation, coma, tremors, and spastic, but rarely flaccid, paralysis. Mild cases may resemble nonparalytic poliomyelitis. Case fatality ranges from 5 to 60%, that of eastern equine and Japanese B types being highest. Permanent sequelae are rare except in infants. Specific identification of the disease is by demonstration of an increase in antibody titer between early and late serum specimens using complement fixation, neutralization, or hemagglutination-inhibition tests. The virus may be isolated from the brain of fatal cases. Histopathologic changes are not specific for individual viruses. These diseases must be differentiated from encephalitic and nonparalytic forms of poliomyelitis; rabies; mumps meningoencephalitis; postinfection or postvaccinal encephalitis; lymphocytic choriomeningitis; bacterial, protozoal, leptospiral, and fungal encephalitides or meningitides. There is no specific treatment, nor are isolation, concurrent or terminal disinfections, or quarantine indicated.

The source and reservoir of infection in the United States are wild and domestic birds. Although serving as hosts, neither horses nor man are important reservoirs of infection for types found in the United States. An infected mosquito is the immediate source of infection for man except for Russian spring-summer encephalitis which is tick-borne. The incubation period is usually 5 to 15 days. The virus is not directly transmissible from man to man. Susceptibility to the clinical disease is usually highest in infancy and old age; inapparent or undiagnosed infection is more common at other ages. Infection of any degree apparently results in homologous immunity but not to other types.

Preventive measures are directed toward the elimination of known or suspected mosquito vectors through destruction of larvae and adults and their breeding places. Screening of living quarters and the use of individual protective measures, such as repellents and bednets, are indicated when the disease is present. Vaccines are not recommended for general use.

(CDR B. F. Gundelfinger MC USN, General Health Practices, PrevMedDiv)

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Influenza 1959 - 1960

Specialists of the U.S. Public Health Service and members of the Advisory Committee on Influenza Research are agreed that no widespread attacks of influenza are presently anticipated. Localized outbreaks of the disease undoubtedly will occur during the next several months, however, and vaccination is considered a prudent measure. The predominant type of influenza this fall and winter will probably be the A-2, or Asian strain, rather than Influenza B which was the major form last year.

The Surgeon General of the Public Health Service, Dr. Leroy E. Burney, announced that certain groups in the American public should seriously consider vaccination before the influenza season begins.

The following groups were advised to seek medical advice as to their need for the vaccine: (1) persons for whom the onset of influenza might represent an added health risk, such as individuals with cardiovascular or pulmonary conditions, persons over age 55 with chronic illness of any type, and pregnant women; (2) persons responsible for the care of the sick; (3) persons responsible for providing essential public services, such as law enforcement, fire protection, transportation, and communications; and (4) industries and other commercial enterprises wishing to keep the employee absenteeism rate from rising. (Press Release: Department of Health, Education, and Welfare, P.H.S., October 12, 1959)

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Control of Schistosomiasis in Puerto Rico

The snail control activity by the Navy in Puerto Rico is almost completely confined to the U. S. Naval Station, Roosevelt Roads, which is located in a hyperendemic area. Other Navy areas in Puerto Rico and the Caribbean either do not have the vectorial snail, or the possibility is considered remote that snails are infected with Schistosoma mansoni and/or that humans are infected from the snail.

Up to January 1959, the control procedure consisted of inspection for the vectorial snail Taphius (Australorbis) glabratus and its control through spraying infested water surfaces with sodium pentachlorophenate at the rate of 15 pounds per acre of water surface one foot deep (Klock, et al., 1957). This program was uneconomical and inadequate for several reasons, including overdose causing adult snails to leave the water and escape, incomplete killing of snail ova, absence of residual agent in water to control snail larvae developing from viable ova, and frequent action as a biocide killing much beneficial life. A control program with more permanent results was needed.

Through Dr. F. F. Ferguson, U. S. Public Health Service, several adults of the competitive snail, Marisa cornuarietis, which had shown such good possibilities as a biologic control in the Quebrada San Anton Watershed (Oliver-Gonzalez, Ferguson, 1959) (Medical News Letter, Vol. 33, No. 7, 3 April 1959) were introduced in the Rio Daguao on the Naval Station. Observation indicated that these snails were thriving and multiplying in this water course and to all appearances would have no great difficulty in adapting themselves to the ditches and other streams on the Station. Therefore, in March the decision was made to set up a rearing pond and to change the character of the vectorial snail control program by gradually introducing the competitive snail Marisa into all fresh water streams and ditches on the Station as these snails became available in the rearing pond.

The pond was made by damming a stream that originated on the Station from a spring that apparently flowed the year round. Vegetation of the type described by Doctors Oliver-González and Ferguson was not natural to the site; however, several water weeds and blue-green algae were natural and it appeared, in the first month after introducing a few Marisa adults, that these food sources were acceptable. Additional adults were then added to the rearing pond. It seems fortunate that this pond was started at this time as the torrential rains, flooding, and subsequent reduction of the Rio Daguao and other water courses on the Station during May and June produced a high mortality of Marisa in these water courses. From all appearances, the Marisa is a pond snail and there will be difficulty in keeping populations of them in water courses that are subject to such conditions as swift currents, flooding, and drying. The snails in the rearing pond were not appreciably affected by the heavy rains. The rearing pond is being enlarged to accommodate a high production of these competitive snails. Water plants of the genus

Caladium and other pond genera are being introduced into the rearing pond to provide a more ample food supply.

The snail control program for the Station has taken the following form:

1. Inspection of drainage ditches and other water courses for the presence of the vectorial snail, Taphius (Australorbis) glabratus.
2. Spraying of the water surface of snail infested ditches and streams with sodium pentachlorophenate at the rate of 15 pounds per acre of water surface one foot deep.
3. Reinspection two weeks later for the presence of the vectorial snail.
4. With absence of the vectorial snail, stocking of the ditch or stream with competitive snail, Marisa cornuarietis, as a biologic control to oppose the return of the vectorial snail. If adults of the vectorial snail are found, retreatment (as in item 2.), reinspection, and stocking.

Inspections thereafter are made on the basis of once each quarter at selected locations in the water courses that originate outside the Station boundaries or are connected to ditches and streams that do, and once every 6 months at selected locations in ditches and streams that originate within the Station. These subsequent inspections are for the presence of either snail. If the vectorial snail is present and the competitive snail is definitely missing, complete retreatment and restocking is undertaken. If both snails are found, consideration is given to increasing the number of competitive snails from the rearing pond, but no spraying of the water course with molluscicide is done. If inspection reveals only the competitive snail or no snails, it is considered that control has been obtained for that period. With ditches originating off the Station, emphasis is on quarterly instead of semi-annual inspections because these ditch systems are considered much more open to contamination with the disease organism and reintroduction of the vectorial snail.

The Station at Roosevelt Roads has approximately 254,500 lineal feet of drainage, streams, and sea level drains. Of these, approximately 42,250 lineal feet are sea level drains of more than 1000 p.p.m. salinity which apparently is lethal to the schistosoma cercariae (author's observation). Therefore, for purposes of control, about 115,125 lineal feet of water courses are inspected at selected locations on a quarterly basis, and 97,125 lineal feet on a semi-annual basis. These inspections are of necessity spread out over the required periods. Two "critical" areas of 19,875 lineal feet combined, one a housing area called "120 Houses," and the other below the housing area at Bundy, are inspected monthly and treated or stocked with Marisa as indicated.

Although well under way, the complete program will not be "fully operational" until December 1959. (Report to Puerto Rican Advisory Committee for Bilharzia Control: Control of the Vectorial Snail of Schistosomiasis (Bilharzia) at Naval Installations in Puerto Rico, W.H. Wymer, Entomologist, Area Public Works Office, Caribbean, HDQTRS, 10 ND, San Juan, P.R.)

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Training at Disease Vector Control Center

Graduation time comes once each month at the Disease Vector Control Center (DVCC) NAS, Jacksonville, Fla. Year-round service students on active duty or in the Reserve earn diplomas in DVCC's two major pest prevention and control courses.

"Disease Vector Control," the long established 2-week course, is designed primarily for Reserve officers of the Civil Engineer Corps, Seabees, and Medical Department personnel who request active duty training for 14 days.

"Disease Vector and Economic Pest Prevention and Control," a more extensive 4-week course, is open to all active duty officers, enlisted personnel, and civilian employees of the Armed Forces who are engaged in supervisory or actual pest control activities.

The Two-Week Course. Since its inception in November 1948, over 600 active duty training Reserves have graduated from the 14-day AcDuTra course in "Disease Vector Control." Reservists are indoctrinated in the latest concepts of insect vector control with practical applications in utilization of the newest insecticides and equipment.

The first week is spent studying arthropods and insects and basic principles of their prevention and control. The safe application and use of pesticides is stressed.

Considerable time is allowed for studying the mosquitoes' importance and relation to man as disease vectors and economic pests. Students are taught in the laboratory to distinguish different species of larval and adult mosquitoes and how to properly use power-driven and hand-operated insecticide dispersal equipment in control procedures.

During the second week, students become acquainted with the importance, biology, identification, habits, prevention, and control of domestic filth flies and deer flies. Ectoparasites, such as ticks, mites, lice, true bugs, and fleas are also studied. Other subjects studied are wood-destroying organisms, such as termites and general household pests, including ants, cockroaches, and silverfish. Lectures are given on poisonous arthropods, reptiles, and domestic rodents.

The latter part of the second week, students are taught methods of recognizing and detecting domestic rodent signs, techniques in rat-proofing and stoppage, principles of domestic rodent and ectoparasite prevention and control, and importance of domestic rodents as disease reservoirs and destructive agents.

Supplementing study of different types of pests and insects, lectures are given on insect resistance to insecticides and effect of insecticides on wildlife.

The curriculum is concluded with a lecture on vector control in disaster and mass evacuation and a practical demonstration in the use of the Vector Passive Defense Kit during a possible biologic warfare attack.

This AcDuTra course is given once every other month except in June and August when the curriculum is held twice monthly. The extra courses offered during these summer months are provided to accommodate the increased flow of college and university instructors and students who wish to take advantage of DVCC's training facilities during summer recess.



Students observe demonstration of field equipment.

Newly scheduled dates for convening the 2-week AcDuTra course in Disease Vector Control are:

<u>Fiscal Year 1960</u>			<u>Fiscal Year 1961</u>		
7 Dec through	19 Dec		1 Aug through	13 Aug	6 Feb through 18 Feb
8 Feb "	20 Feb		15 Aug "	27 Aug	3 Apr " 15 Apr
11 Apr "	23 Apr		10 Oct "	22 Oct	5 Jun " 17 Jun
6 Jun "	18 Jun		5 Dec "	17 Dec	19 Jun " 1 Jul
20 Jun "	2 Jul				

Quotas for Navy personnel may be obtained from the appropriate Naval District Commandant. Quotas for other military services may be obtained from Chief, Bureau of Medicine and Surgery, Department of the Navy.

Washington 25, D. C. Billeting and messing facilities are available at NAS, Jacksonville, Fla.

The Four-Week Course. The four-week curriculum in "Disease Vector and Economic Pest Prevention and Control" is a more detailed course providing a basic background in pest control. It is designed to assist trainees for eventual certification as pest control operators in accordance with Department of Defense directives. Actual certification is accomplished through a District Public Works Office upon the recommendation of a Public Works or Navy Medical Department entomologist. Since its inception in August 1956, this curriculum has graduated over 100 students.

During the first week, students study the biology and importance of the arthropods and, more specifically, the orders of insects and arachnids. Basic principles of arthropod prevention are presented with emphasis on the latest concepts of arthropod control.

Because of the importance of chemistry in entomology, the students receive an early introduction to various types of insecticides, rodenticides, fungicides, herbicides, and wood preservatives. Students are taught the simplified procedures and calculations for mixing, diluting, and preparing pesticide liquid, solid, and gas formulations.

Major emphasis is placed on safe utilization of pesticides as trainees consider basic hazards, precautions, and protective measures involved in handling, storing, and transporting Standard Navy pesticides. Use of protective devices, clothing, and accessories is taught in the classroom and demonstrated in the field.

Through the end of the first week and beginning of the second, students study the importance, biology, life cycles, characteristics, habits, identification, and control of such selected household and nuisance pests as the ant, cockroach, silverfish, book louse, and such ectoparasites as ticks, mites, fleas, bedbugs, conenose bugs, and sucking lice.

During the second week, students are taught the epidemiology of vector-borne diseases. They explore the importance of basic sanitation, learn refuse disposal principles and methods, and observe proper construction, operation, and maintenance of the sanitary landfill.

After inspecting the refuse storage, collection, and disposal methods aboard NAS, Jacksonville, the trainees are introduced to the operational procedures, maintenance, and safety precautions in operating the Tifa, Dynafog, Buffalo Turbine, John Bean Power Sprayer, Swing Fog, and Microsol machines, and aerial insecticide dispersal equipment.

As the second week nears its end, students scrutinize the damaging effects to food, fiber, and hardwood material made by stored products pests.

The third week covers extensively all the vector and control aspects of mosquitoes and other blood sucking flies, domestic filth flies, rodents, and poisonous arthropods, reptiles, and plants. In the final week, topic subjects

and studies, similar to those made on insects, domestic rodents, and reptiles, are continued on such pest vertebrate animals as the bat, squirrel, mole, and other mammals. Fumigation principles, procedures, preparations, and safety precautions are introduced and demonstrated to the students. Fumigants such as methyl bromide, "carboxide," paradichlorobenzene, and cyanogas are studied. Students learn the properties and applications of herbicides during the control study on weeds and noxious plants.

Finally, to complete the course, the last 4 days are spent in the study of wood preservation against wood-destroying pests. Control studies are made on such wood-eating insects as subterranean and drywood termites, powder post beetles, and carpenter ants.

Newly scheduled dates for convening the basic 4-week course in Disease Vector and Economic Pest Prevention and Control are:

<u>Fiscal Year 1960</u>		<u>Fiscal Year 1961</u>	
4 Jan through 29 Jan		5 Jul through 29 Jul	9 Jan through 3 Feb
7 Mar " 1 Apr		6 Sep " 30 Sep	6 Mar " 31 Mar
2 May " 27 May		24 Oct " 18 Nov	1 May " 26 May

Attendance quotas for this course are allocated and may be obtained from the Officer in Charge, Disease Vector Control Center, U.S. Naval Air Station, Jacksonville 12, Fla.

Billeting and messing facilities are available at NAS, Jacksonville, for both military and civilian personnel attending the course.

(DVCC, Jacksonville, Fla.)

* * * * *

Essentials of Food Establishment Sanitation

In the two previous articles on this subject (Medical News Letter, 3 July 1959 and 18 September 1959) the importance of the physical health of food workers was stressed, and the necessity for careful scrutiny of food wholesomeness was emphasized, respectively. This article, presented as the third in the series, discusses refrigeration and cold storage of food.

Food Refrigeration

Food refrigeration ranks next to people and food wholesomeness in safeguarding sanitary food quality and public health protection. If perishable foods are not effectively held at low cold temperatures, many of the other public health precautions which must be taken to protect food will be negated.

The refrigeration of food has three distinct purposes. The first is preservation of food by arresting multiplication and proliferation of bacteria in

and on food. Secondly, in food itself metabolic action takes place, but this is arrested to a considerable degree in a cold atmosphere. Finally, enzymatic action is retarded. Both metabolic and enzymatic action have much to do with the flavor, nutritive value, and palatability of food. While control in all three instances contributes to healthfulness of food, the most important consideration in terms of food sanitation is that relating to control of bacterial growth. Upon this point primarily, food ordinances specify temperature limits for the storage of food at low temperatures.

Temperature Requirements

While the majority of food ordinances and regulations establish 50° F. as the upper limit for the refrigerated storage of perishables, this temperature is not sufficiently low for a number of readily perishable foods. To give added emphasis to this point, the following examples are given by kinds of fresh foods and recommended temperatures.

<u>Kind of Food</u>	<u>Recommended Temperature Range (° F.)</u>
*Vegetables	36-45
Cured and processed	
meats	36-40
Fresh meat	34-38
Fresh poultry	29-32
Seafood	
Fresh fish	25-30
Boiled lobsters	36-40
Oysters, shucked	23-30
Fresh milk	40-45

* Some exceptions are sweet potatoes, spinach, eggplant, celery, and endive. In these cases, temperatures up to 55° F. may be allowed.

This abbreviated tabulation emphasizes that the type of food to be refrigerated is a leading factor in determining proper and effective temperature, and that a single temperature standard fails to consider the relative perishability of different kinds and classes of foods.

Adequacy of Refrigeration

While temperature requirements form the foundation for proper holding and storage of fresh perishable foods, the amount and adequacy of refrigeration are of almost equal importance. Adequacy has to be judged by a number of variables; therefore, it is not possible to say that a food service establishment serving "X" number of customers per day will need "Y" cubic feet

of refrigeration space. Some factors which influence the adequacy of refrigeration are:

1. Type of establishment. That is, table service, cafeteria, lunch counter, drive-in, or supper club.

2. Type of patrons. This will largely determine the size and elaborateness of the average menu which is a basic factor in establishing minimum refrigeration needs.

3. Size, seating capacity, and customer turnover during mealtime. A quick-lunch counter, where the average turnover per seat is 12-15 minutes, might be a small establishment in floor area, but would require larger refrigeration facilities than a large dining room where patrons eat leisurely and the seat turnover during serving periods is relatively light.

4. Seasonal influx of patrons as in the case of resort restaurants and roadside eating places. Refrigeration which is adequate for slow periods may be entirely inadequate during "peak" business impact.

5. Frequency with which food stocks are delivered. Infrequent deliveries increase the need for larger storage facilities to meet daily service requirements.

With these factors in mind the food sanitarian must evaluate each establishment as a separate entity. However, there are some positive signs of inadequate refrigeration. One of the most obvious is overcrowding of refrigerator space. If reach-in coolers are used, the disorderly stacking of food or the placing of food containers one upon another can usually be taken as a sign of space inadequacy. In the case of walk-in refrigerators, the close hanging of meat can be taken as a sign that the cooler is too small for the amount of meat stored.

It is common practice to check only the temperature of the atmosphere in refrigerators. While this is necessary and important, the use of a special thermometer that can be inserted in the stored food itself may be of considerable assistance in judging both the capacity and efficiency of refrigeration. This too is a valuable means of showing the supervisor the necessity of placing food masses in low shallow pans rather than in deep stock pots and similar containers. Even with an ambient temperature of 40° F. food masses at the center remain at incubation temperatures for long periods and provide an opportunity for bacterial multiplication.

The food service establishment supervisor should be instructed on the importance of low cold temperatures and the proper use of refrigerator storage. He should be warned against allowing perishable foods to remain in warm rooms. Failure to use refrigeration correctly, overcrowding of coolers, and storage of large food masses in deep containers are frequent causes of food-borne illness. Because refrigerators are mechanical equipment and subject to mechanical failure and deterioration, each one should be equipped with an accurate thermometer. A refrigerator may warm to a temperature well above 40° F. and not be noticed unless there is an accurate thermometer which can be checked at regular intervals.

Installation Suggestions

In most instances, best results will accrue if refrigeration loads are divided among units that are operated at or near the same storage temperature. Attempting to run both low and high temperature coolers from a single condensing unit generally results in higher operating costs per ton of refrigeration.

Another important point is the quality of the refrigeration unit purchased. A high quality unit will hold temperatures more uniformly, resist corrosion, and be more economical to operate. Small units should have aluminum, stainless steel, or other rust resisting surfaces. Floors in walk-in coolers should be level with the adjoining floor to permit barrels and heavy produce and meat containers to be wheeled in. The refrigerator should be lighted so there is 20 to 25 foot candles of light evenly distributed. Shelving should be removable to facilitate cleaning. Bins should be on casters to allow the floor beneath to be maintained in a sanitary manner. Ultraviolet lights have little merit and can in no way take the place of good sanitary practices and proper temperatures.

Refrigeration Regulations

In preparing a regulation on refrigeration as it applies to the food service business, several considerations may be taken into account. The first involves temperature, temperature maintenance, and proper use of facilities. It may be difficult to detail all conditions and circumstances surrounding the refrigeration of perishable foods. The Manual of Naval Preventive Medicine, NavMed P-5010-1, 1-57, contains a table on refrigeration of perishables for the guidance of medical department and commissary personnel in computing the maximum recommended storage periods for fresh and frozen subsistence items under storage or holding temperatures. The following sample regulation embodies several of the salient points to be considered.

Refrigerators

Adequate refrigerator facilities will be provided all food service facilities and other food establishments to permit sanitary storage of perishable foods. Refrigerators and other cold storage facilities will be kept in a satisfactory state of repair and will be equipped with thermometers in working order. Storage shelves, meat hooks, food compartments, floor drains, et cetera, will be provided in refrigerators and cold storage rooms for the sanitary storage of perishables. Handles, doors, and the interior of refrigerators, cold storage rooms, and ice chests will be kept scrupulously clean and free from odors. Storage shelves, food compartments, meat hooks, et cetera, will be kept clean. Food will not be placed in the same compartment with ice. No unwholesome food will be placed in refrigerators or cold storage rooms. Carcass meat received in bulk (unsliced) will be hung on hooks with proper spacing for ventilation. No food will be placed directly on

the shelves and all food containers will be covered. Refrigerator circulating and blower units will be kept defrosted. (Special Service Article, Some Essentials of Food Establishment Sanitation: Journal of Milk and Food Technology, 22: 117-119, April 1959)

* * * * *

Rules for Turnpike Driving

America's high-speed highways—turnpikes—are responsible for a new and extremely dangerous threat to the life of motorists. The threat, "highway hypnosis," claims an increasing number of lives daily. Because of traffic in the city, no one worries about road-and-speed hypnosis. However, the most skillful city driver faces this new risk on the superhighways. To overcome this driving menace, the following rules are suggested:

KEEP ALERT EVERY MINUTE—note out-of-state licenses; call out road signs and town names.

CHECK YOUR DASHBOARD INSTRUMENTS. Read aloud to yourself or to those with you the mileage and speed of travel. Check the gas gauge; running out of gas is not only an inconvenience, but a parked car becomes another highway hazard for other drivers.

MAKE SURE YOUR VEHICLE IS IN TIPTOP CONDITION—brakes, lights, tires, and windshield wipers. The best of drivers is a menace in an unsafe automobile, and garage bills are far less painful than hospital costs.

BE SURE YOU ARE IN GOOD SHAPE YOURSELF. Don't try to drive when weariness creeps up; pull off safely to one side of the road and take a nap. A simple headache can rob you of the alertness you need for the road.

FOR LONG HAULS, learn the tricks that over-the-road drivers use—chewing an oversized wad of gum, sitting on a board, or singing aloud.

STOP EVERY NOW AND THEN, even when you don't feel tired, and get out of the car. Have a cup of coffee, slap cold water on your face, and relax for a few minutes.

WATCH EVERYTHING AROUND YOU. Staring straight ahead is one way to slip under the spell of the highway. Look into the car mirrors. (For a good driver, a mirror check every five seconds is the rule.)

RELY ON YOURSELF and don't put blind faith in signs and signals. You may have the right-of-way, but the other driver may decide to ignore the stop sign. A clear conscience is small consolation if you are wrapped in a plaster cast.

GIVE OTHERS A BREAK. Give plenty of warning before changing lanes, and don't change lanes except to pass or make a turnoff.

STAY ALERT! STAY AWAKE! STAY ALIVE!

(Nine Rules to Keep You Alive on the Turnpike: Car News and Travel Times: 1:5, September 1959)

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Diarrhea of Travelers

Diarrhea of travelers, widely recognized as a clinical syndrome, has been the subject of more speculation than investigation. The study reported was designed to determine if any of the enteropathogenic bacteria were responsible for the clinical syndrome. Stool samples were obtained for 14 consecutive days from 62 United States students in Mexico. Of these, 27 became ill with diarrhea and 35 remained well during the period of observation.

Salmonella and Shigella were not cultured in any case. Enteropathogenic E. coli, Klebsiella and Paracolobactrum could not be incriminated as the cause of the diarrhea of travelers to Mexico. (Varela, G., et al., The Diarrhea of Travelers, II. Bacteriologic Studies of U.S. Students in Mexico: Am. J. Trop. M., 8: 353-357, May 1959)

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Travel Immunization Revision

"Immunization Information for International Travel" (PHS pub. #384), revised in June 1959 by the Foreign Quarantine Division, Public Health Service, Department of Health, Education, and Welfare, reflects changes since June 1958 in PHS and international immunization requirements and designated yellow fever vaccination centers. Copies may be obtained from Bureau of Medicine and Surgery, Code 72, or local PHS office. Current changes may be noted in "Weekly Morbidity and Mortality Report," National Office of Vital Statistics, or "Foreign Epidemiological Summary," Foreign Quarantine Division, PHS, Dept. of HEW. (CommDisBranch, PrevMedDiv)

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(Continued on page 40)

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